

REMARKS:

Claims 5-9 are in the case and presented for consideration.

Claims 5-8 were rejected under 35 U.S.C. § 103 as obvious from Japanese Patent JP 05019240 to Masayaki (JP '240) in view of U.S. Patent 5,496,497 to Takiguchi.

Independent claim 5 has been rewritten to clarify the claimed invention, and not for reasons of patentability. Claim 5 recites "the first type of monomer being an ethoxylated acrylate and readily miscible with a liquid crystalline material." Claim 5 recites at least one limitation not taught or suggested by the prior art. The prior art, either as separate references, or in combination, fail to teach or suggest a first type of monomer being an ethoxylated acrylate and readily miscible with a liquid crystalline material.

Initially applicants note that when combining references to find a claimed invention obvious, a suggestion or teaching must be found in the prior art to make the combination. It is well established in the patent law that, "obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination."

Carela v. Starlight Archery, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986).

When prior art references require a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination.

Uniroyal Inc. v. Rudkin-wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Applicants respectfully submit that a prior art reference should not be taken out

of context and relied upon with the benefit of hindsight to show obviousness. Rather, a reference should be considered as a whole, and portions arguing against, or teaching away the claimed invention must be considered. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416 (Fed. Cir. 1986).

As acknowledged by the Office, JP '240 teaches an ethoxylated acrylate monomer which is poorly miscible with the liquid crystal (see Office Action dated November 3, 2003, page 3, first paragraph). Thus, JP '240 fails to teach or suggest a first type of monomer being an ethoxylated acrylate and readily miscible with a liquid crystalline material.

Moreover, applicant reiterates that Takiguchi '497 does not teach or suggest an ethoxylated acrylate monomer that is readily miscible with a liquid crystal material. As applicant stated in its previous response, Takiguchi '497 does not teach or suggest that any specific monomer is readily miscible or poorly miscible with any liquid crystal. The Office has not shown any contrary teaching or suggestion.

The Office has responded that JP '240 teaches a mixture of one acrylate miscible with the liquid crystal and one acrylate poorly miscible with the liquid crystal. Still, the Office has previously acknowledged that JP '240 teaches an ethoxylated acrylate poorly miscible with the liquid crystal. Therefore, JP '240 teaches away from the claimed invention. JP '240 teaches away from an ethoxylated acrylate having good miscibility with the liquid crystal as recited in claim 5.

The Office further points out that Takiguchi '497 teaches that the optimal HLB of the acrylate component varies depending on the kind and concentration of liquid crystal. The Office cites a specific example of acrylates with HLB values of 1.8 and 6.0 respectively and states that the difference is "significant."

First, Takiguchi '497 does not teach optimal HLB of acrylate components as suggested by the Office. Takiguchi '497 states that "the HLB of each monofunctional acrylate is not particularly limited." (col. 6, lines 31-32). Takiguchi '497 is not concerned with the miscibility of either monofunctional acrylate, but only that the final HLB value of an acrylate mixture is within a certain range. Therefore, Takiguchi '497 does not teach or suggest an ethoxylated acrylate that its readily miscible with the liquid crystal. Applicant further notes that Takiguchi '497 never discusses miscibility. The nature of the liquid crystal display is never even defined.

Second, the Office's characterization of the 4.2 difference between HLB values as "significant" is not found anywhere in the reference. Such a characterization cannot be made without knowledge of the nature of the liquid crystal display and the miscibility of the acrylate components. Takiguchi '497 does not offer information regarding either. The acrylate component examples having 1.8 and 6.0 HLB values respectively are only given to demonstrate the criticality of achieving a final HLB value of an acrylate mixture, and for no other purpose. Applicant reiterates that Takiguchi '497 states, "the HLB of each monofunctional acrylate is not particularly limited." Thus, the Office only uses the example of acrylate components having different HLB values out of context in order to piece together an obviousness rejection using impermissible hindsight. Takiguchi does not state anywhere that the difference in HLB values between the acrylate monomers need to be significant. The characterization of the HLB difference as "significant" is only within the scope of the Office's personal knowledge. As such, applicant also requests that the Office provide an affidavit supporting its contention pursuant to 37 C.F.R. §1.104(d)(2).

The Office also argues that "the difference in HLB is an indication of the

difference in miscibility which provides an advantage for the end-use of the final product." Applicant respectfully disagrees. Because the polarity of the liquid crystal is not described, and there is no indication that the different components of the monofunctional acrylate mixture have a good versus a poor miscibility, there is no support for the Office's position. As applicant has explained in its previous response, monomers (5) and (6) could both be compatible or incompatible with the liquid crystal material. The fact that there is a difference in HLB of 4.2 does not indicate that one acrylate is compatible and the other is incompatible. It only indicates that the degree of solubility is different. Even if one acrylate has better compatibility than another, both acrylates may still be compatible with the liquid crystal.

Applicant also reiterates that the focus of the '497 patent is the single and final HLB value of the acrylate mixture for controlling the characteristics of the liquid crystal. The Office has attempted to "reconstruct" the prior art with impermissible hindsight by taking the teachings of the '497 patent out of context to support its position.

The Office also states that the '497 patent "uses liquid crystal which can be either poorly miscible or readily miscible with the alkoxyated phenolacrylate" as long as the final HLB is balanced from 2.5 to 7.0. The Office cites column 6, lines 25-60 of the '497 patent. Applicant has reviewed column 6, lines 25-60 of the '497 patent and does not find any mention that the liquid crystal can be either poorly miscible or readily miscible. Also, as explained above, different HLB values for acrylates does not mean that one acrylate monomer is compatible while another is incompatible. The '497 patent certainly does not state that one component of the monofunctional acrylate is readily compatible while the other is not. Again, the Office has made assumptions based on personal knowledge and applicant requests that the Office provide an affidavit

supporting its contention pursuant to 37 C.F.R. §1.104(d)(2).

The Office further states that "the secondary reference '497 demonstrates that the liquid crystal can be readily miscible with the alkoxyated phenolacrylate instead of being immiscible, as long as the other acrylate has the opposite miscibility characteristic." Applicant respectfully disagrees. The '497 patent does not state that the acrylate components have opposite miscibility characteristics. Impermissible hindsight is being used by the Office to reconstruct pieces out of context from the prior art in order to suit the position of the Office. The '497 patent only states that the final HLB value derived from the combination of the components (the acrylate mixture as a whole) should be within a particular range. Because the Office is making assumptions with respect to the prior art, and therefore using personal knowledge rather than the text of a specific source, applicant requests that the Office provide an affidavit supporting its contention pursuant to 37 C.F.R. §1.104(d)(2). In any case, applicant notes that acrylates (5) and (6) having HLB values of 1.8 and 6.0 may both be compatible or incompatible to a liquid crystal. Thus, contrary to the examiner's assertion, they would not be opposite in miscibility.

The Office has also responded that "the secondary reference '497 demonstrates that the liquid crystal can be miscible with the alkoxyated phenolacrylate." The '497 patent does not teach or suggest that a liquid crystal is miscible with anything. Again, the position of the Office is not supported by the plain text of the '497 patent.

Moreover, applicant previously submitted that formulas (7) and (8) are preferred because of their low vapor pressure, and not their miscibility. The Office has responded that only another advantage of the prior art has been recognized, which cannot be the basis for patentability. However, applicant is not pointing out another

advantage as a basis for patentability. Applicant is simply pointing out that the basis for the Office's logic is erroneous. The Office's position appears to be that acrylate monomer (6) has an HLB value which is different from acrylate monomer (5), that monomer (6) is a specific member of the family of monomers (7), and that monomer (8) is listed as suitable like monomer (7). However, as discussed above with respect to monomers (5) and (6), Takiguchi '497 does not teach or suggest that monomers (7) or (8) have a particular miscibility in any particular liquid crystal. Monomers (7) and (8) are only related because they are preferred due to low vapor pressure.

Finally, applicant previously submitted that Takiguchi '497 only teaches an alkyl-phenol acrylate that is part of an acrylate mixture, and not separately as a readily miscible component of a PDLC. The Office again responds that "the secondary reference '497 demonstrates that the liquid crystal can be miscible with the alkoxyated phenolacrylate instead of being immiscible as long as the other acrylate has the opposite miscibility characteristic." Again, the plain text of the '497 patent does not teach or suggest that any particular acrylate is miscible or immiscible.

Claim 9 has been rejected under 35 U.S.C. § 103(a) as obvious from Japanese Patent JP 05019240 to Masayaki (JP '240). The Office withdrew its previous arguments and now reasons that although JP '240 teaches an ethoxylated acrylate monomer that is poorly miscible with a liquid crystal, routine experimentation would lead to use of an ethoxylated acrylate monomer as readily miscible.

Independent claim 9 has been rewritten to clarify the claimed invention, and not for reasons of patentability. Claim 9 recites "the first type of monomer being an ethoxylated acrylate and readily miscible with the liquid crystalline material." Claim 9 recites at least one limitation not taught or suggested by the prior art. The prior art,

either as separate references, or in combination, fail to teach or suggest a first type of monomer being an ethoxylated acrylate and readily miscible with a liquid crystalline material.

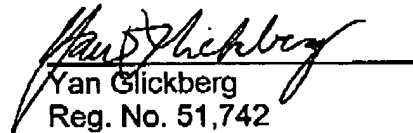
Furthermore, applicant respectfully submits that JP '240 expressly teaches away from the claimed invention. Teaching away from the art is a *per se* demonstration of lack of prima facie obviousness. *In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ 2d 1596 (Fed. Cir. 1988). One skilled in the art having knowledge of JP '240 would be drawn away from using an ethoxylated acrylate monomer as a monomer readily miscible with a liquid crystal, since JP '240 teaches such monomers as poorly miscible with a liquid crystal. One skilled in the art would not desire to perform routine experimentation since JP '240 leads one skilled in the art away from ethoxylated acrylate monomers as readily miscible monomers. It may seem to the Office that it would be obvious to use ethoxylated acrylate monomers as readily miscible monomers as a result of hindsight, since the Office has now read applicant's specification and is now aware of applicant's invention. However, one skilled in the art at the time of applicant's invention would have lacked any incentive to use ethoxylated acrylate monomers as readily miscible monomers or to perform the routine experimentation that the Office suggests.

Accordingly, the application and claims are believed to be in condition for allowance, and favorable action is respectfully requested. No new matter has been added.

If any issues remain which may be resolved by telephonic communication, the Examiner is respectfully invited to contact the undersigned at the number below, if such will advance the application to allowance.

Favorable action is respectfully requested.

Respectfully submitted,


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